



# Fortified Settlements in the Eastern Baltic: From Earlier Research to New Interpretations

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A brief history of research and earlier interpretations of fortified settlements east of the Baltic Sea are provided in the first part of the article. The earlier research has resulted in the identification of the main area of the distribution of fortified settlements, the main chronology in the Late Bronze and Pre-Roman Iron Ages, and their general cultural and economic character. It has been thought that the need for protection – either because of outside danger or social tensions in society – was the main reason for the foundation of fortified sites. The second part of the article adds a new possibility of interpreting the phenomenon of fortified settlements, proceeding from ethnogenesis of the Finnic and Baltic peoples. It is argued that new material culture forms that took shape in the Late Bronze Age – including fortified settlements and find assemblages characteristic of them – derived at least partly from a new population arriving in several waves from the East-European Forest Belt.

**Keywords:** fortified settlements, East Baltic, Bronze Age, ethnic interpretation.

## Įtvirtintos gyvenvietės Rytų Baltijos regione: nuo ankstesnių tyrimų prie naujų interpretacijų

Pirmoje straipsnio dalyje pateikiama trumpa Rytų Baltijos regiono įtvirtintų gyvenviečių tyrinėjimų istorija ir ankstesnių tyrimų interpretacija. Ankstesnių tyrimų rezultatas – įtvirtintų gyvenviečių vėlyvojo žalvario ir ikiromėniškojo geležies amžiaus laikotarpio pagrindinės paplitimo teritorijos, principinės chronologijos bei pagrindinių kultūrinių ir ekonominių bruožų nustatymas. Buvo manoma, kad poreikis gintis nuo išorės pavojų ar kilus įtampai visuomenėje buvo svarbiausia įtvirtintų gyvenviečių įrengimo priežastis. Antroje straipsnio dalyje siūloma nauja įtvirtintų gyvenviečių fenomeno interpretacijos galimybė, paremta finų ir baltų etnogeneze. Straipsnyje teigiama, kad naujos materialinės kultūros bruožai, susiformavę vėlyvajame žalvario amžiuje, įskaitant įtvirtintas gyvenvietes ir joms būdingus dirbinius, bent jų dalis, yra naujų gyventojų, kurie keliomis bangomis atvyko iš Rytų Europos miškų juostos.

**Reikšminiai žodžiai:** įtvirtintos gyvenvietės, Rytų Baltija, žalvario amžius, etninė interpretacija.

## Introduction

The fortified settlements east of the Baltic Sea form an interesting type of archaeological sites. They have been studied for more than a hundred of years, but it is still not clear what one is dealing with. First, the term ‘fortified settlement’ is something of a misnomer for all those sites usually covered by this term. In fact, man-made fortifications have not been found at every site although it is ‘clear’ to every archaeologist that the hilltop settlements with a thick cultural layer of the Early Metal Period (i.e. the Bronze Age and Pre-Roman Iron Age) are nothing but ‘the fortified settlements’. It has been additionally explained, therefore, that if not humans, then nature itself

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has protected those sites by creating inaccessible conditions. In other words, when choosing locations for these sites, the possibility to enclose some space and to defend it against strangers was kept in mind. In any case, the term ‘fortified settlement’ – despite its widespread usage – is not the best solution. The term ‘hilltop settlement’ is not better either because in many cases one needs some fantasy to imagine a hill. The term ‘enclosed settlement’ (as used by Olausson, 1995) sounds better, but the enclosing of settlement sites was a phenomenon which later had a much more widespread distribution – why then use this term only for the sites of the Early Metal Period. The present paper does not suggest a new and better term, but the term ‘fortified settlement’ will be used as the one, which has been commonly used in eastern Baltic and Finnish archaeology.

Second, we actually do not know how many sites of this kind have existed in their own time. Because most of these sites are discovered when excavating hill forts of later prehistoric periods, their number keeps increasing and the distribution area changes. Thanks to a special inventory in recent years the number of fortified settlements has dramatically increased in Lithuania, for instance, exceeding two hundred as of today (personal communication from Algimantas Merkevičius). Third, the chronology of fortified sites still entails many unsolved questions. When did they emerge? Were these sites originally fortified, i.e. from the time of the earliest finds at these sites? What kind of fortifications (if any) were erected in which periods (i.e. what did the evolution of fortifications look like)? Was the use of fortified settlements continuous over the entire period, which is marked with the earliest and latest finds, or were there any breaks?

The biggest and most important question, however, concerns the people living in these settlement sites, and reasons why they lived in this manner. Who were they? Did all people live in this way, defending themselves against an outside enemy? Were these sites military sites at all or were they erected, perhaps, only for symbolic demonstration of power? Hence, could these people have regarded as some kind of emerging elite of a society that needed both protection of their accumulating property and means for organizing power relations? And did the common people of the time live in simple and small open settlements? Finally, were they local people or, perhaps, ‘outside’ immigrants?

There is no summarizing study of the fortified settlements in the entire eastern Baltic region. However, this is certainly a type of archaeological sites that does not respect the modern national borders. Hence, the corresponding research should ignore and cross all those borders. Therefore, the present article considers fortified settlements in parallel in Estonia, Latvia, Lithuania, Finland, and eastern central Sweden. Naturally, the distribution area of fortified hilltop sites of the Early Metal Period is not limited to the previously mentioned countries; they were indeed more widespread both in the east and south. The limitations are set by the scope of this article, however. The history of research and earlier interpretations are provided in the first part of the article while the second part analyses some new possibilities of interpreting the phenomenon of fortified settlements in the light of ethnogenesis of the Finnic and Baltic peoples.

## Research history of fortified settlements

### *Until the mid-1960s*

The study of fortified settlements of the Early Metal Period started first in what is today *Latvia*. Already at the end of the 19<sup>th</sup> century, small-scale excavations were carried out at the hill forts of Sārumkalns, Mūkukalns, and Aizkraukle while at the beginning of the 20<sup>th</sup> century some data was also added from Kļāņģukalns and Vīņakalns. New excavations continued in the 1920s and, to a much larger extent, in the 1930s (Kļāņģukalns, Daugmale, Dignāja, and Jersika). Still more extensive excavations started after the war in the 1950s and 1960s (Aizkraukle, Asote, Ķenteskalns, Koknese, Matkule, Mūkukalns, and Tērvete). In his monograph on the Early Metal Period in Latvia, Jānis Graudonis (1967) was able to count altogether 19 hill forts where remains of fortified sites of that period had been discovered, mostly as smaller or bigger find assemblages under the layers of later times. In addition, he suggested that there could be some twenty more sites with similar findings among the unexcavated sites (Graudonis, 1967, p. 23).

The first results of earlier investigations were summarized by Harri Moora (1929, 15 ff.). Known sites (at the end of the 1920s) were mostly located in central and eastern Latvia but were absent in the western part of the country and in the main area of the distribution of Latvian stone-cist graves between the Gulf of Riga and the Gauja river. At that time more exact dating of the very poor find material – mostly coarse-grained potsherds, artefacts of bone, antler, and stone – was rather difficult and problematic. The very nature of this material gave some reason to Moora (1929, p. 20) to characterize this period as *eine recht niedrige Kulturstufe*. As no traces of this ‘primitive settlement culture’ had been discovered in the cemeteries of the Roman Iron Age, Moora found it possible to date all these settlement sites to the preceding period, i.e. the Late Bronze and Pre-Roman Iron Ages. He also drew some parallels with the early hill forts in eastern Lithuania where archaic pottery with striated (brushed) surfaces and artefacts of bone, antler, and stone had been found in several sites. In more eastern regions, early hill forts (*gorodisches*) with similar findings were reported from the Dyakovo culture region, i.e. from the Middle Volga and Oka rivers to the surroundings of Novgorod. Despite some local differences, Moora considered numerous common traits characteristic of Latvian, Lithuanian, and Dyakovo fortified settlements more important. This culture was very poor in metal artefacts while semi-sedentary people subsisted on hunting-fishing, cattle rearing, and some primitive and limited agriculture. The living in fortified sites implied, according to Moora, that they did not feel secure in this land. A relatively large community, a clan consisting of several families who jointly defended their living place, supposedly occupied each site.

Moora did not specify the ethnic belonging of the people of fortified settlements. Although the Dyakovo sites were regarded Finno-Ugrian by most researchers of that time, the Latvian and Lithuanian sites must have belonged to ancient Balts who had occupied these regions in earlier periods. A misleading step was the linking of the Āraiši lake settlement to the group of fortified settlements of the Early Metal Period because its (actually much younger) pottery seemed to have parallels in western (and not in eastern) Lithuania, presumably occupied by the Balts. It was impossible to claim anything more concrete about the probable relations between the fortified settlements and Latvian stone-cist graves; at least in the distribution area of Estonian stone-cist graves these settlements were absent at that time.

By the mid-1960s, when the number of known fortified settlements had remarkably increased, their distribution area had changed as well. Now the Daugava river valley down to the river mouth came to the fore while one site (Matkule) had also been found in western Latvia. However, sites were still absent in the main distribution area of stone-cist graves between the Gulf of Riga and the Gauja river (Sārumkalns and Tanīskalns are located on the south-eastern edge of this area). In other smaller areas of the distribution of stone-cist graves the fortified sites were also missing (see Graudonis, 1967, Fig. 1). According to Graudonis, the foundation of fortified settlements was caused by power struggle between communities for better living space, and the need to protect increasing property (crops, cattle, furs, slaves, etc.). Graudonis (1967) claimed that although the very first fortifications had been erected in the Late Bronze Age, these sites mostly belonged to the Pre-Roman Iron Age. At the end of the Pre-Roman Iron Age, in accordance with the development of agriculture and separation of nuclear families from clans (or extended families), people gradually started to move out from fortified settlements and to live in open farms and hamlets. Thus, according to Graudonis, clans consisting of several nuclear families occupied the fortified sites, and they were Balts by their ethnic origin (because pottery with striated or smoothed surfaces predominated in these sites).

In *Lithuania* the first data on fortified settlements emerged at the beginning of the 20<sup>th</sup> century when Ludwik Krzywicki (Kšivickis) excavated on eight hill forts (see Volkaitė-Kulikauskienė, 1986a; Iwanowska, 2009; Vengalis, 2016). As a result, he suggested a remarkable cultural difference between eastern and western Lithuania. Hunting and fishing were more practised in the eastern part of the country and agriculture in the west. The ‘primitiveness’ of eastern Lithuania derived actually from the circumstance that the hill forts studied there at that time originated in much earlier prehistoric periods than those in western Lithuania. After the work of Krzywicki

there were also some excavations by Petras Tarasenko on the hill forts at Velikuškiai and Vosgėliai, but in general the research in this field decreased to a minimum for half the century (Zabiela, 2008; Vengalis, 2016).

The first overview of fortified settlements in Lithuania was published by Kulikauskas et al. in 1961. There was only limited data on the existence of fortified sites that were dated to the Bronze Age (Velikuškiai); more numerous were the sites from the following period, i.e. the Pre-Roman Iron Age: Dūkštas, Petrašiūnai, Moškėnai, and some others. These sites could be characterized by Striated Pottery and artefacts of bone, antler, and stone; metal artefacts were very rare. It was assumed that the reason for the foundation of fortified sites was the need to protect the property, mostly cattle, as cattle rearing was the main activity of people living in those sites. Contemporary funeral sites were almost unknown, except the cemetery with pit graves at Lankiškė in north-western Byelorussia. While the western Lithuanian barrow cemeteries of the Bronze and Early Iron Ages were regarded as monuments of the western Balts, the fortified settlements with Striated Pottery in eastern Lithuania had to belong to the ancestors of the eastern Balts. The distribution area of the latter most likely extended farther to the east, as evidenced both by the spread of hill forts with Striated Pottery and Baltic hydronyms (i.e. the upper reaches of the Daugava and Dnieper rivers).

In *Estonia* the existence of fortified sites of the Early Metal Period was proved not before the 1930s, when excavations were carried out at Asva and Iru; in the 1960s, new sites were added at Ridala and Narva. In addition to these four, some more hilltop sites with a few finds from the late Pre-Roman Iron Age (but without a thicker cultural layer) were linked to the group of fortified settlements as well (e.g. Muuksi and Koila).

As similar settlements were already well known in Latvia, it was possible to draw parallels with the Estonian sites. Moora (1939) pointed out that fortifications were not needed in the hunting societies of the Stone Age; they were erected only when agriculture became the main livelihood. These sites were occupied by clans who jointly cultivated surrounding fields, pastured their herds, and defended their homes. The question of ethnic origin presented some interest to Richard Indreko (1939) who had studied Asva. He drew attention to the circumstance that contemporaneous with Estonian and Latvian fortified settlements were also stone-cist graves spread in both countries, and that the stone-cist graves developed continuously further into new types of stone settings that were used until the end of prehistoric times, proving the ethnic continuity in both regions. In addition, the find assemblages of Estonian and Latvian (Klaņģukalns) fortified settlements were very similar to each other. According to Indreko, the Estonian and Latvian fortified settlements together with similar sites in eastern Lithuania and the region of the Volga-Oka rivers had to belong to the same ethnos, i.e. the Finno-Ugrians.

Later, Indreko developed his own radical continuity theory (cf. Lang, 2018, p. 54), claiming that already the very first settlers who occupied the eastern Baltic region following the retreating ice sheet in the early Mesolithic (Kunda culture) spoke some Uralic protolanguage (Indreko, 1948). When distinguishing and defining the concept of the Asva culture, Indreko (1961) stated that it was a Late Bronze and Pre-Roman Iron Age culture of people living at fortified settlements in Estonia, northern Latvia and south-western Finland, which belonged to similar cultures in the East-European Forest Belt (like Dyakovo and Gorodische) but had not derived from them. The Asva culture differed from the latter by its find assemblage and foreign contacts; it belonged to the Finnic people and was derived through the cultures of Kiukainen and Comb Marked Pottery from the Kunda culture. One of the differentiating features was, according to Indreko, the existence of contemporaneous stone-cist graves in the territory of the Asva culture<sup>1</sup> (cemeteries are generally unknown in the regions of the Dyakovo and Gorodische cultures). He did not discuss the relations between fortified settlements and stone-cist graves

<sup>1</sup> On the map, Indreko (1961, plate 47: 1) drew the distribution area of the Asva culture so that it reached from the Daugava river in the south to south-western Finland in the north and from central eastern Sweden in the west to the line between Lake Ladoga and Pskov in the east. Indeed, the Estonian and Latvian stone-cist graves are located *within* those limits. However, as noted, there were no fortified sites in the immediate vicinity of Latvian stone-cist graves. The situation was different in Estonia: The Iru site stands in the vicinity (2–2.5 km) of several groups of stone-cist graves while the distance is somewhat longer in the case of Asva and Ridala (4–5 km).

in further detail, however. As one can see, Indreko cast aside the eastern Lithuanian and south-eastern Latvian fortified settlements – they were not considered Finno-Ugrian any more. The reason was simple – knowledge of both northern and south-eastern fortified settlements and the corresponding find assemblages had remarkably increased by that time, and the differences between these groupings had become clear.

Until the late 1960s, both the fortified settlements and stone-cist graves were dated similarly to the Late Bronze and Pre-Roman Iron Ages (i.e. from the second quarter of the first millennium BC to the beginning of Common Era). While the sites at Asva, Ridala, Iru, and Narva dated from the earlier part of this period, a group of other hill-top sites with a weak cultural layer (e.g. Koila, Purtse, Muuksi, Alatskivi) were dated to the late Pre-Roman Iron Age (Moora, 1955). The latter were considered as temporarily used sites, for example in times of unrest, while the main population mostly lived in open settlements. The change in the settlement pattern – from fortified sites to open settlements – was explained by progress in farming economy, which presupposed the division of larger communities into smaller ones (nuclear families) and the dispersal of smaller communities over lands suitable for tillage. As the theory of ethnic continuity from the Comb Marked Pottery to historical times was also elaborated at that time (Moora, 1956; 1958), there was no doubt among the researchers that both the fortified settlements and stone-cist graves in Estonia and northern Latvia had belonged to Estonian and Livonian tribes.

Field work that had started at Darsgärde in eastern central *Sweden* in 1956 revealed a hilltop settlement next year, the excavations of which yielded similar material assemblage as in the eastern Baltic region. The cultural layer of the Late Bronze Age was discovered there under the habitation and fortification layers of the Migration Period and was immediately connected with the corresponding material from Asva, Iru, and south-western Finland (Ambrosiani, 1958; 1959). The reason was that the ceramics of Darsgärde differed markedly from the rest of eastern Swedish pottery, being similar to the ceramics from the eastern shore of the Baltic Sea. The question whether the people of Darsgärde had immigrated or had roots in the local coastal population was left open. According to Björn Ambrosiani (1959), the surroundings of Darsgärde as well as other more northern (and eastern) shores of the Baltic Sea could have been populated by tribes descending from those making Neolithic Combed and Pitted wares.

### *From the late 1960s to the end of the 1980s*

Although the first excavations at Vanhalinna hill fort in Lieto, the best known fortified settlement in south-western *Finland*, had been carried out in 1886 and the first treatment of this mostly late prehistoric – early medieval fort had been published in 1914 by Juhani Rinne, the site became known as a Bronze Age fortified settlement only thanks to the monograph by Jukka Luoto (1984). New and thorough excavations preceded the monograph in 1957–1975. Luoto associated the Vanhalinna site and some other probable fortified settlements in south-western Finland with the network of similar sites in East Baltic, central Europe and in the East-European Forest Belt up to the core areas of the Dyakovo and Gorodische cultures. According to Luoto, the main reason for the foundation of such settlements was the need to protect both the herd and the production / trading of bronze. Following Moora, Luoto also suggests that the abandonment of fortified settlements was caused by the development of agriculture and dispersal of settlement during the Pre-Roman Iron Age. Unto Salo (1984, p. 121) pointed out that fortified settlements opened a new chapter in the settlement history of Finland – for the first time the location of a habitation place was chosen proceeding from the conditions of protection. And the reason was a period of unrest. As there were no fortified settlements in Scandinavia (except Darsgärde with its eastern material), Salo thought that the danger had to come from the west, i.e. from the sea. At the same time the foundation of fortified settlements demonstrates that the local society was able to make a stand against possible invaders, as it was able to build fortifications.

No new excavations were carried out at Darsgärde in *Sweden*, but a mention should be made of the article by Synnöve Reisborg (1989) analysing the ceramics of Darsgärde. She discovered that although this pottery is gener-



ally similar to Estonian-Finnish Bronze Age pottery, the best parallels can still be found close to Lake Ladoga and Karelia. This kind of pottery was made by the people sharing common roots and traditions. The subsistence of this people was based on cattle rearing and swidden cultivation, combined with hunting, fishing, and gathering. Like Ambrosiani, Reisborg did not discuss the probable connection of the Darsgårde people with migration. It should be mentioned, however, that also other kinds of archaeological sites were discovered in eastern central Sweden referring to the ‘eastern people’ – for instance, the early *tarand* graves. Such graves were reported from six localities and dated from the final Bronze Age to the Pre-Roman Iron Age (Modin, 1973; Bennett, 1975; Feldt, 2005, fig. 38).

In *Estonia*, only a few excavations can be mentioned from this period – new excavations at Iru in 1984–1986 and the investigations at the Kaali meteorite crater in 1976–1979, which was also considered to be a fortified settlement then.<sup>2</sup> The research into the Early Metal Period in Estonia led Vello Lõugas (1970) to conclude that local fortified settlements had been in use for a much shorter period than previously thought. He claimed that the sites at Asva, Iru, Ridala, and Narva were erected in the 9<sup>th</sup> century and abandoned in the 6<sup>th</sup> century BC but were after a hiatus put to good use again at the end of the Pre-Roman Iron Age (except Ridala). This late Pre-Roman stage had to be a rather short period, but its distribution was more widespread. An important change was also made in the chronology of stone-cist graves; Lõugas suggested that the very first graves were built in the Late Bronze Age (i.e. they were contemporaneous with the fortified settlements), but the majority of them had to belong to the Pre-Roman Iron Age. In this way, the Estonian fortified settlements and the majority of stone-cist graves happened to be chronologically separated from each other.

According to Lõugas, fortified settlements were founded by those communities that were economically stronger and their membership was bigger; they had more property and larger herds. The coastal location implies that the danger could also come from the sea; tribal conflicts were probably also quite common. In ethnic terms, the descendants of both the Comb Marked Pottery and Corded Ware cultures had to be assimilated with each other before that time and blend into a single Proto-Finnic ethnos (Jaanits et al., 1982, 159 ff.). The distribution area of this Proto-Finnic ethnic group had to reach the Daugava river valley in the south because the ceramics found at the settlements near the Daugava (e.g. Mūkukalns and Kļanģukalns) resembled the Estonian ceramics much more than the corresponding Lithuanian ceramics (ibid.).

As suggested by Lõugas (1970), the fortified settlements were abandoned due to the development of agriculture when more and more lands suitable for agriculture were needed. He pointed out that primitive field cultivation of those days preferred thin but humus-rich soils without a dense forest cover – soils that were widespread in the coastal areas of northern and western Estonia. The distribution of stone-cist graves in smaller groups over such soils indicated, as Lõugas believed, the dispersal of farming settlement after the abandonment of fortified settlements (Jaanits et al., 1982, 196 ff.).

Unlike Estonia there were large-scale and comprehensive archaeological excavations on several fortified settlements in *Latvia* since the late 1960s. Some of this work was carried out due to the building of the hydroelectric power station of Riga and raising the water level on the lower reaches of the Daugava river, which destroyed a number of archaeological sites. One important site which was totally excavated was Ķivutkalns (both the cemetery and the settlement; 1966–1967), the other was Vīnakalns. In other regions of Latvia, too, large-scale excavations were carried out in those years: e.g. in Brikuļi, Dievukalns, Klosterkalns, and Madalani. Some of these (and earlier) materials were published by Graudonis (1978; 1989), Raissa Denisova et al. (1985; for the burial ground of Ķivutkalns), Andrejs Vasks (1994), and Anna Zariņa (1982).

Graudonis (1978; 1989) analysed the remains of fortifications, house floors, fire pits, and find assemblages of three fortified sites, i.e. Mūkukalns, Ķivutkalns, and Vīnakalns. As for fortifications, the researcher suggested

<sup>2</sup> Today Kaali is considered to be a fortified cultic site rather than an ordinary settlement site (see Lang, 2007, 75 ff.). It has to be mentioned, however, that the find assemblage of Kaali comprehensively resembles what was found from Asva and Ridala, and, on the other hand, some cultic function in a more general sense has also been associated with other fortified settlements.

that some of the ramparts had contained wooden chambers that had been built with the purpose of keeping the huge earthen body together. This building technique was unknown elsewhere in the neighbouring countries at so early time. A recent study (Vasks, 2014) has shown, however, that these systems as described by Graudonis were more recent, perhaps late Pre-Roman. The settlement sites in question were dated by Graudonis from the beginning of the first millennium BC up to the turn of our era. He suggested that the abundance of settlement sites on the lower reaches of the Daugava river (seven fortified sites and a dozen open settlements) proves a steady increase in population numbers in this area towards the end of the first millennium BC, the division of extended families into nuclear families, and the beginning of the formation of communities organized according to territorial principles.

Important and large-scale excavations were also carried out at several fortified settlement sites in north-eastern **Lithuania** in the late 1970s and early 1980s (for the reasons see Zabiela, 2008): e.g. in Narkūnai (1975–1978), Nevieriškė (1976–1978), Sokiškiai (1980–1983), and Kereliai (1985–1986) (LA 5; Grigalavičienė, 1992). It was reported that the fortified settlements had become the most important settlement units and centres already in the fourth quarter of the second millennium BC; open settlements were very few in number and they were not excavated. The location of fortified settlements on the hilltops near lakes and rivers indicated the importance of both water routes and good conditions for herding and field cultivation. Altogether 46 fortified settlement sites were known in Lithuania in those years, whereas Nevieriškė, Narkūnai, Sokiškiai, and Petrašiūnai were considered to be the earliest sites among the 27 excavated sites. The oldest fortifications consisted of ditches, ramparts, and palisades. According to Grigalavičienė (1986; 1995), the communities living at those sites were supposedly extended families; they represented the group of eastern Balts who originated in the local late Narva culture while the western Balts occupied western and southern regions of what is now Lithuania.

### *The 1990s and later*

Due to both economic difficulties and the growing need for more elaborated (and, hence, more expensive) excavation methods and equipment, there have been only limited excavations on fortified settlements during the years of restored independence in all three Baltic states. One can mention some small-scale excavations, such as at Asva in 2012–2014 and 2018, Kõivuküla in 2011, and Belte (Padure) in 2003–2007 (Sperling et al., 2015; Valk et al., 2012; Vasks et al., 2011). There are also several new studies of earlier findings, the most comprehensive of them being Uwe Sperling's research into the Estonian fortified settlements, the Asva group as he called them (Sperling, 2014), and Agne Čivilytė's study on the bronze work in Lithuania (Čivilytė, 2014); in addition, there are several shorter treatments (e.g. Luik & Maldre, 2007; Sperling & Luik, 2010; Podėnas et al., 2016). The interpretation of fortified settlement sites started to change as well.

Thus, already in the 1990s, the researchers in all three countries started to stress social aspects associated with the foundation of fortified settlements. According to Andrejs Vasks (1994; 1999), the fortified settlements emerged only after the completion of the transition from hunting-gathering to farming subsistence. This process created preconditions for the accumulation of surplus of farming production, and this, in turn, led to increased inequality. That was the reason why economically and socially more advanced communities started to defend their settlements, to build monumental above-ground cemeteries, and to hide hoards. Vasks drew attention to the establishment of settlement hierarchy in some settlement areas both in the Daugava valley and in the surroundings of Lake Lubāns: both fortified and unfortified open settlement sites were spread there side by side. The fortified sites could be divided into two groups depending whether bronze was cast or not, whether they were properly defended or not, or whether they possess a find-rich cultural layer or not. Based on this data, Vasks uses the term 'low level chiefdom' when characterizing the society of the Late Bronze Age in Latvia. The evidence of

such chiefdoms included (Vasks, 1994, p. 121): 1) dominance of production economy in the subsistence effort; 2) an increase in the population number and density; 3) formation of more distinct boundaries between separate regions; 4) territorial conflicts; 5) concentration of significant material resources and manpower at certain times and places, namely in the construction of hill forts and burial mounds; 6) bronze weapons and ornaments became prestige items; 7) exchange contacts associated with bronze and metal-working activity at hill forts promoted hill forts as the main centres of redistribution; 8) the arrangement of burials and the forms of graves in burial mounds (Reznas, Kalnieši, etc.) point to the existence of a hierarchical society.

The abandonment of fortified settlements around the turn of the Common Era was caused by the exploitation of surrounding agricultural lands and the wider distribution of iron, as suggested by Vasks.

In Estonia, further elaboration of the chronology of the Early Metal Period led to the situation that many stone-cist graves that had been dated from the Pre-Roman Iron Age by Lõugas were once again dated back to the Late Bronze and the very beginning of the Pre-Roman Iron Ages,<sup>3</sup> whereas the date of the fortified sites remained more or less the same (Lang, 1996, p. 297). It followed, for instance, that several groups of stone-cist graves, located within a radius of 2–5 km from the fortified settlement at Iru, were in use contemporaneously with living in this fortified settlement. This evidence gave a reason to picture the settlement pattern of this area as consisting of a bigger fortified centre and several single open farmsteads around it (Lang, 1996, 462 ff.). Those open farmsteads had left behind not only groups of stone-cist graves but also a few weak habitation layers here and there. Differently from the interpretation by Vasks, this settlement and social structure was not called a chiefdom, mostly because of a relatively small-sized population and a low degree of status difference between the settlement units. Instead, a more neutral term ‘system of central settlement and individual farms’ was used, characterized by 1) hierarchical settlement structure (a fortified centre on a hilltop controlling casting and circulation of bronze and open settlements around), 2) hierarchical social structure (the chief’s family in the fortified settlement, free farmers in the open sites, and most likely there were also slaves), and 3) a relatively small territory, e.g. ca 200–300 km<sup>2</sup> in northern Estonia (ibid., p. 465).

Analogous tendencies in the change of the interpretation of fortified settlements occurred also in Lithuania. According to Algimantas Merkevičius (2005; 2007), the Late Bronze Age settlement pattern in eastern Lithuania consisted of three different types of sites: fortified settlements on hilltops, fortified lake settlements and open settlement sites in open and lower lands. Cemeteries were flat but only a few of them are known. Fortified settlements of the first group became economic, religious, and military centres. The material culture of those sites was dominated by artefacts of stone and bone/antler; metal artefacts were few in number although there is rich evidence of bronze casting. The building of big fortified settlements meant that one part of society had to be subordinated to some kind of power structures. In other words, a certain hierarchy developed in both society and the settlement pattern, and the fortified settlements controlled certain territories where also open settlements were spread. According to Merkevičius, this structure had some similarities with the system of central settlement and individual farms in northern Estonia.

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To sum up, the research history of more than a century has resulted in the identification of the main area of the distribution of fortified settlements (although it gradually becomes more advanced due to the finding of new sites), the main chronology in the Late Bronze and Pre-Roman Iron Ages (despite many new questions), and the general cultural and economic character – that is, scarcity of metal artefacts (although they have often cast bronze), abundance of bone and antler artefacts, the small role of field cultivation but importance of cattle rearing, hunting and fishing, and absence of known cemeteries. Although there have been contemporaneous stone-

<sup>3</sup> A project for the dating of burials in Estonian stone-cist graves by the AMS method has pushed them even more back in time; today these graves are dated from ca 1200 to 400 BC (Laneman, 2012; Laneman & Lang, 2013; Laneman et al., 2015).



cist graves in coastal Estonia (at Iru, for instance), it is not self-evident that both the fortified sites and stone-cist graves belonged to the same community because they originated in different cultural backgrounds (see below). The social interpretation of fortified settlements has shifted from the idea of defence of the entire population against a foreign enemy to emphasis on differences within the society, to demonstration of both settlement and social hierarchies, even to the picturing of chiefdoms. Against this background, the fortified settlements have always and without a doubt been considered residual places of the elite.

## **Towards a new interpretation**

In order to better understand the phenomenon of the fortified settlements of the East Baltic Bronze Age in its entirety, one has to consider not only the military, social, and economic background, which has been done quite thoroughly so far but also the ethnic origin of the people living in those sites. Indeed, ethnic questions have been addressed by previous researchers already, mostly through the aspect of ceramics found at those sites. Yet, this was done in the framework of the ruling ethnic paradigm of those years, according to which the ancestors of both the Proto-Balts and Proto-Baltic-Finns had arrived to the East Baltic and Finland already in the Neolithic (e.g. Moora, 1956; 1958; Jaanits et al., 1982), if not in the Upper Paleolithic and Early Mesolithic (e.g. Indreko, 1948; Girininkas, 1994; Wiik, 2002). Today, however, this ethnic paradigm (the so-called continuity theory) has been seriously challenged by historical linguistics (e.g. Kallio, 2006; Häkkinen, 2009), archaeo-genetics (Mittnik et al., 2017; Saag et al., 2017; Saag et al., in preparation), and archaeology (Lang, 2015; 2018). New data and ideas in all these fields of research cast new light also on the question of fortified settlements. Due to limitations of this article, it is not possible to go into many essential details here – such as the theoretical basis of archaeological interpretation, for instance. I have done it elsewhere (Lang, 2018, p. 87–118), whereas here I present only a general framework of the problem and its probable solution.

### ***Previous ethnic view***

It is characteristic that when discussing ethnic origin, the Latvian and Lithuanian researchers have stressed the importance of pottery with striated (brushed) surfaces while the Estonian and Finnish archaeologists have drawn attention to other features of pottery, although the tradition of striation of surfaces was also common in northern settlements. Perhaps the main reason for that has been a stereotypic understanding, common among the early archaeologists (e.g. Tretyakov, 1966; Rozenfel'dt, 1974), that while Striated Pottery was made by the ancestors of the Balts, the Finno-Ugrians decorated their pots with textile impressions. One can think that the Balts were not expected to be inhabitants of the fortified settlements in Estonia and Finland – the more so because some southern researchers had expressed this standpoint quite vigorously. For example, Jānis Graudonis (1980) had pointed out that as pottery with striated surfaces was, in addition to Latvia and Lithuania, also widespread in Estonia, Finland, and eastern central Sweden, these areas, too, were inhabited by the Proto-Balts. As an additional argument, he used the circumstance that the distribution area of the 'Striated Pottery culture' coincided largely with that of the Corded Ware culture, which 'as is known' belonged to the Indo-Europeans, i.e. the ancestors of the Balts. Graudonis claimed that the continuity between these two groups of pottery was evident because the striation of surfaces of clay vessels was also known to the makers of the Corded Ware.

Similarly to Graudonis, all other archaeologists have seen the roots of the ceramics of the fortified settlements in the eastern Baltic region in local earlier Late-Neolithic ceramics; they differed only in the question whether these roots had originated in the Corded Ware, Combed Marked Pottery, or even in the Narva Ware (e.g. Yanits, 1959; Graudonis, 1980; Vasks, 1991; Grigalavičienė, 1995). That was because the striation of pot surfaces was

used, in one way or another, in all these local pottery styles.<sup>4</sup> Such an approach proceeded from the ethnic paradigm, mentioned above, which foresaw the roots of the Finnic and Baltic peoples in the East Baltic and Finland extending to the Stone Age. Therefore, the researchers, despite their national background, quite unanimously suggested that the builders of the fortified settlements were local people, i.e. the indigenous tribes living there since much earlier times, who – after reaching a certain social-economic stage of development – started to defend their settlements in order to protect their increased property. In more northern regions those people were Finno-Ugrians, in more southern regions – the (eastern) Balts.

### *The problem*

Such an interpretation of ethnic continuity, despite some ‘nuances’, such as whether the inhabitants of the fortified settlements were considered to have been the Finno-Ugrians (Indreko, 1939), the Balts (Graudonis, 1980) or the former in the north and the latter in the south (mainstream), has become less and less plausible because a serious setback in the development of settlement and material culture during the Early Bronze Age has become more and more evident. First, this recession is clearly observable in the materials of northernmost East Baltic, i.e. Estonia, northern Latvia, and also south-western Finland. The number of sites decreased remarkably and we do not know any particular pottery style from the period of ca 2000/1700–1500/1200 BC (Lavento, 2001, p. 183; Lang, 2007, 31 ff; Tallavaara et al., 2010; Sundell et al., 2014). On the other hand, it is also clear that there has been no total hiatus of human habitation during this period – numerous isolated finds are known, mainly late stone axes and early bronze artefacts, as well as rather firm evidence of human influence in pollen diagrams reported from many localities. All the known settlement sites of this time, which are few in number, have been small, short-term, and with a weak cultural layer, which implies low population numbers and sparsity and relative mobility of the settlement.

That material culture that emerged after this setback, i.e. mostly in association with the foundation of fortified settlements or, in some areas, even a few centuries before, was a new culture without local preceding stages everywhere in Estonia, northern Latvia and south-western Finland. The earlier attempts at proving the continuity between the East Baltic Early Metal Period pottery and the local pottery groups from the Late Neolithic (see above) are not convincing in the light of today’s knowledge (see more in Lang, 2018, 143 ff., 303 ff.). The same holds true concerning the south-western Finnish Kiukainen pottery style, which traditionally has been considered as a source for the Late Bronze Age Paimio Ware (e.g. Meinander, 1954, p. 171; Salo, 1984, 154 f.). In both cases the continuity is not likely because (1) there is a remarkable chronological hiatus between the Late Neolithic and Late Bronze Age pottery styles (which was still unknown even only a few decades ago), and (2) there is a remarkable difference between the potteries of these two periods if one compares the clay temper, morphology, and decoration of pots (see more Lang, 2018, p. 122–151, 303 f.).

One cannot forget here that it was not only pottery, which in northern East Baltic changed during the transition to the later Bronze Age, but the entire material culture became renewed. All kinds of bone and antler production, which is characteristic of fortified settlements, differ remarkably from that known from the latest settlement sites before the setback. There can be two opposite ways how one could explain the situation. First, this renewed material culture (incl. pottery) – as we know it from the Late Bronze Age – might be a final outcome of the one-thousand-year-long steady local development, the intermediate steps of which we are simply not able to follow

<sup>4</sup> It should be added here that the striation of clay pot surfaces was characteristic not only of the local Neolithic pottery styles. This custom was widespread in the forest zone and pots with striated surfaces have been reported from Finland in the north to Poland in the south and from the Baltic shores in the west to the surroundings of Moscow in the east; the dates extend from the Neolithic to the mid-first millennium AD. A running experiment has shown, interestingly enough, that both striations and textile-like impressions can be actually made by one and the same tool – a conifer cone (without seeds). Scraping over the surface leaves striations while pressing into and rolling over the surface leaves a textile-like pattern (personal communication from Riina Rammo).

due to the lack of archaeological sites. Second, the Late Bronze Age culture in the northern East Baltic could also be associated with the arrival of new people from outside this region. What is indisputable, however, is that it is a remarkable demographic and cultural setback during the Early Bronze Age, which makes it impossible to speak about the continuity as the main line of developments over those centuries and turns the former explanation less plausible than the latter.

In eastern Latvia (the surroundings of Lake Lubāns), the situation became somewhat different. In the Late Neolithic and Early Bronze Age, a new pottery style – the so-called Lubāna Ware – was established based on earlier local Neolithic potteries (Loze, 1979, 100 ff., figs 70–75, plates XLVI–XLVIII). As absolute radiocarbon dates are still missing for this pottery style, we do not know how long did it survive into the Bronze Age; yet, more importantly, the style of the Lubāna Ware differs completely from the pottery of fortified settlements – there is nothing in common (Vasks, 1991, p. 109). And here as well the corresponding assemblages of stone, bone, and antler artefacts are different. Therefore, even in this part of Latvia the cultural continuity in the transition from the earlier to the later Bronze Age is unlikely.

Due to lack of special studies, it is difficult to evaluate the situation in southernmost East Baltic, that is, what today are north-eastern Lithuania, south-eastern Latvia, and north-western Byelorussia. Although the striation of pot surfaces spread in the Neolithic and Early Bronze Age also to this region, Striated Pottery that is associated with fortified settlements of the Late Bronze Age differs completely from all earlier pottery styles (see e.g. Egorejchenko, 2006, 113 ff.; Girininkas, 2013, 132 ff., 171 ff.). And also the rest of material culture with regard to bone and antler artefacts is different – similarly to Latvia and Estonia. It means that a fundamental culture change in association with the spread of fortified settlements was also characteristic of this region. The question is when exactly did this change happen? The problem is that so far there have been almost no radiocarbon dates for Lithuanian fortified settlements and all dates come from rather uncertain chronologies of artefacts and pottery. Traditionally, the beginning of the erection of fortified settlements in Lithuania has been dated from the last quarter of the second millennium BC, based on a third-period decorative pin of bronze found at Narkūnai (Volkaitė-Kulikauskienė, 1986b, p. 33, fig. 46) and the circumstance that stone artefacts – more than from Latvian and much more than from Estonian sites – have been found almost in every fortified settlement. In addition, the earliest radiocarbon dates from north-western Byelorussian fortified settlements also point to the last centuries of the second millennium BC (Egorejchenko, 2006, 54 ff.).<sup>5</sup> However, the find circumstances of the Narkūnai pin are ambiguous – it could have been brought to the finding place later from some other location (Vitkūnas & Zabiela, 2017, p. 16). Algirdas Girininkas (2013, p. 288) has recently suggested, on the basis of the nature of find assemblages and chronology of the overall development of fortifications, that the fortified settlements together with Striated Pottery spread in Lithuania only since 900 BC. It is true that the majority of more-or-less datable finds come from the first half of the first millennium BC and that the earliest hilltop fortifications in the East-European Forest Belt are not older than ca 1000 BC (e.g. Folomeev, 1993). One can ask, therefore, whether the rare finds and radiocarbon dates of the late second millennium BC really indicate the existence of fortified settlements or they demonstrate the earlier, that is, pre-fortified habitation of these sites. In the latter case the next question is when exactly Striated Pottery spread in these settlements?

It seems that the most probable scenario could have been like this. People making Striated Pottery (or some earlier form of it) put to good use some hilltops, which only a few centuries later became gradually fortified. The next question is whether these people originated in local earlier settlement (according to which Striated Pottery

<sup>5</sup> On the basis of radiocarbon dates from the fortified settlements at Zazony and Ratyunki, Aleksandr Egorejchenko (2006, p. 56) suggested that the Striated Pottery culture began already in the middle of the second millennium BC, which is an obvious exaggeration. It is true that the frames of calibration of some radiocarbon results reach the mid-second millennium but all these samples have a very big statistical error. For instance, the sample IGSB-933 has an error of 500 years (by 95.4% probability the range of calibration is 1740–210 BC; the sample IGSB-1148 has an error of 190 years (range from 1620 to 791 BC), and the sample IGSB-648 – 200 years (range from 1880 to 910 BC). The value of such samples for the dating of a site is trivial, however.

must be considered as a local cultural innovation) or did they come from some other place? As the settlement pattern of the Middle Bronze Age was very sparse in this region, the extraordinary settlement density in the subsequent period (cf. Girininkas, 2013, figs 82 and 103) as well as the rather comprehensive culture change that can be associated with this growth is difficult to explain without the influx of new people. In that case one could ask the following question – from where, when, and why did they come?

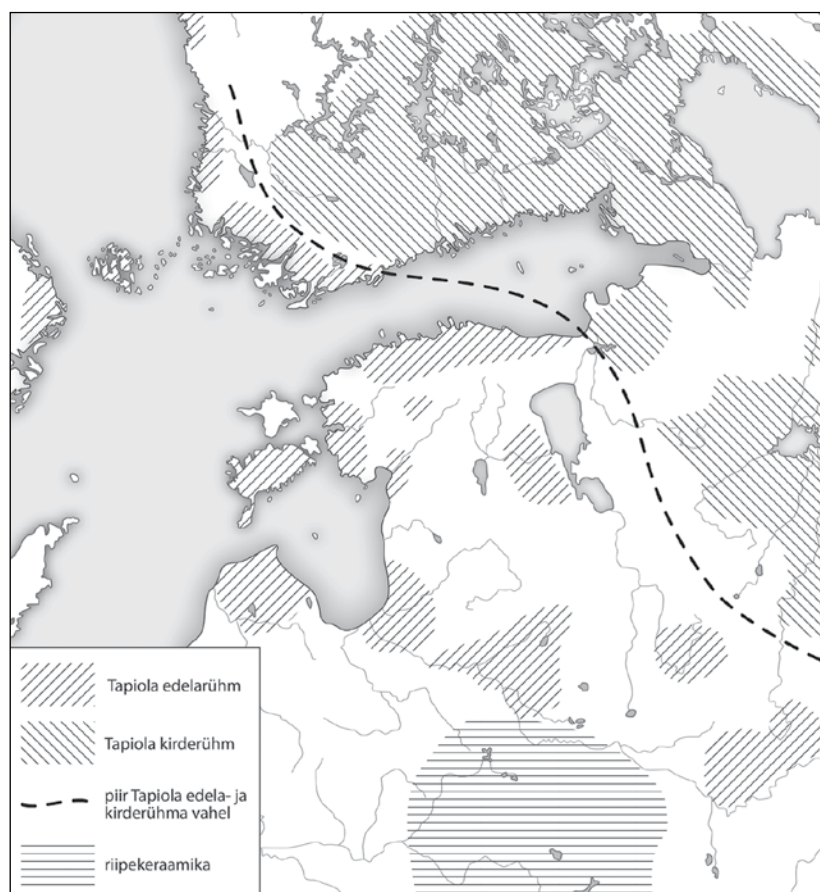
To sum up, the very essence of the problem stands in the circumstance that the fortified settlements together with characteristic ceramics and other find assemblages occurred everywhere in the eastern Baltic region and south-western Finland (and in eastern central Sweden) as a new cultural phenomenon. It is also remarkable that everywhere in this region the fortified settlements were preceded by small open settlements the find material of which resembles that of fortified sites; that is, the new material culture started to spread in the last centuries of the second millennium BC, a few centuries before the erection of fortifications; the latter started to spread only sometime after 1000 BC. Such a sequence is proved by radiocarbon dates at least in Estonia (see Lang, 2018, 132 f., p. 206), but it seems to have been the case also in other parts of the region. It is also noteworthy that direct preceding stages of this new material culture are missing in this region and that the Early Bronze Age settlement was very sparse and the material culture modest (except the Lubāns Plain). Although there is no reason to underestimate the role of local indigenous population in the following explosive growth of settlement and cultural (r)evolution, one has still to ask from where and how additional demographic impulses were received. In other words, the question is in defining the probable immigration in association with the spread of fortified settlements.

### **Immigration**

Archaeology has used to explain (cultural) change either through local developments or as a result of outside impulses – either as a diffusion of ideas or migration of people (with ideas). In the case of the East Baltic Bronze Age, the immigration theory has recently received scientific support from ancient DNA studies. Mitnik et al. 2017 have pointed out that although the Bronze Age population in the East Baltic<sup>6</sup> shows an increased affinity to (western) hunter-gatherers, its genetic composition cannot be explained merely by the admixture between the local Corded Ware people and foragers but involved an additional gene flow from outside the East Baltic territory. On the other hand, although the East-Baltic Bronze-Age population stands genetically closer to the modern population of this region than the Stone Age groups, there have still been important additions afterwards – in the case of the Lithuanians from the south-west and in the case of the Estonians from the east. A new post-Neolithic immigration to Estonia from the east was also suggested by another study (Saag et al., 2017). Moreover, a new ongoing study of Estonian prehistoric populations (Saag et al., in preparation) suggests that there had been noticeable changes in the gene pool in association with both the Bronze Age stone-cist graves and the early pre-Roman *tarand* graves. The former change marked a ‘step back’ to the western hunter-gatherers, the latter contained the arrival of the Y-chromosome haplogroup N3a (N1a1) from the east (see more below). Genetic observations are also in line with the recent ideas in historical linguistics, according to which the ancestors of Baltic Finns came to the eastern Baltic region and Finland only in the Bronze Age or even at the beginning of the Iron Age (Kallio, 2006; Häkkinen, 2009; see also Lang, 2015; 2016; 2018).

These data of neighbouring disciplines together with archaeological evidence described above suggest that it is highly justified to ask whether the remarkable cultural innovations during the Middle and the Late Bronze Age – bringing along, among others, the fortified settlements – were caused by a demographically important influx of new people or not. At least for the region north of the Daugava river this possible immigration, as suggested by both genetic and linguistic studies, had to come from the east/south-east.

<sup>6</sup> The East-Baltic Bronze-Age population – the aDNA of which was analysed by Mitnik et al. 2017 – was represented by ten persons from the Kivutkalns cemetery (dated to 810–230 BC) and four persons from Turlojiškė (No. 3, dated to 1010–800 BC).



**Fig. 1.** The distribution areas of the south-western and north-eastern groups of the Tapiola Ware and the Early Striated Pottery culture (after Lang, 2018, fig. 4.14).

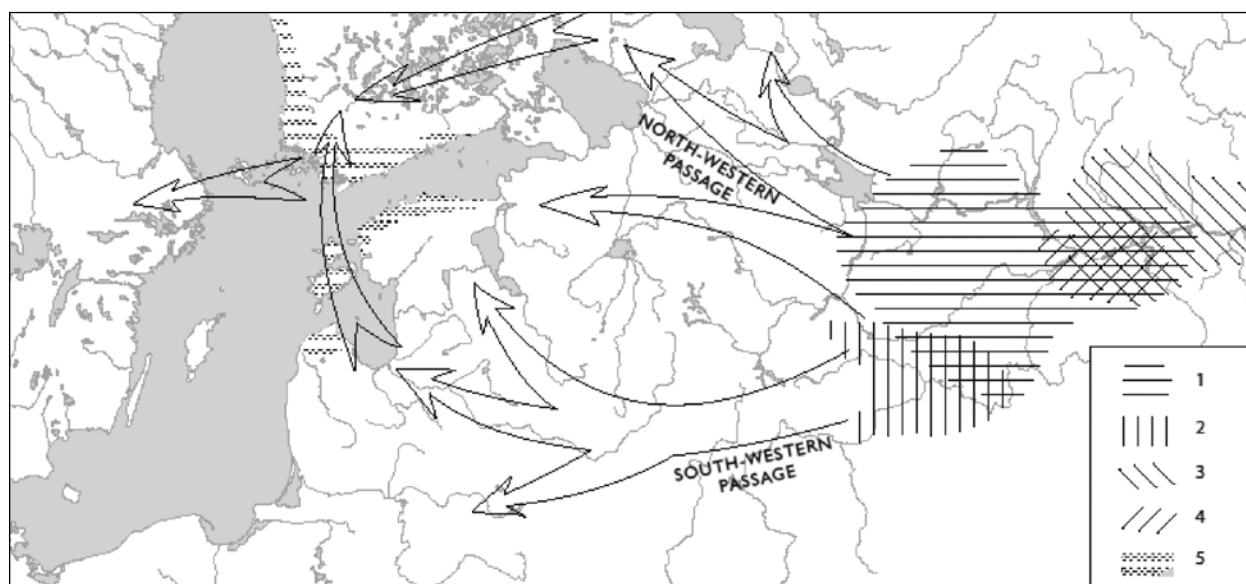
**1 pav.** Pietvakariņi ir šiaurės rytinių Tapiolos keramikos ir ankstyvosios brūkšniuotosios keramikos kultūrų paplitimo teritorijos (pagal Lang, 2018, pav. 4.14)

As noted, the Estonian and Finnish archaeologists have treated the Late Bronze Age pottery in Estonia, south-western Finland, and northern Latvia separately from Striated Pottery. The latter is considered characteristic only of eastern Lithuania, south-eastern Latvia, north-western Byelorussia, and neighbouring areas to the east. Even those archaeologists who support the view that striation of pot surfaces is the main criterion for distinguishing Bronze Age ceramics consider the ‘Striated Pottery’ of the northernmost areas (i.e. areas north of the Daugava river) as a separate ‘subgroup’ (Vasks, 1991; Egorejchenko, 2006). This northernmost pottery is called the Asva type in Estonia and the Paimio type in Finland. While some researchers think that it was one branch of Textile Ware (Lavento, 2001), some others doubt it (Lõugas, 1970; Carpelan, 1999, 268 ff., fig. 6). It is noteworthy, however, that nowhere in Estonia, northern Latvia, and south-western Finland the proportion of textile-impressed potsherds among the Late Bronze Age ceramics exceeds 3–4%, being mostly somewhat less.

Proceeding from the suggestion made once by Hille Jaanusson (1988), I have referred to the Late Bronze Age pottery in Estonia, northern Latvia, and south-western Finland as the south-western group of Tapiola Ware while the so-called Textile Ware with all its subgroups that were distributed from interior Finland to the Volga region formed the north-eastern group of Tapiola Ware (Fig. 1). The uniting name Tapiola (Tapio was a forest god in Finnish mythology; Tapiola – the living place of this god) refers to the understanding that both groups developed from common roots, that is, from early Textile Ware in the Volga region (see more Lang, 2018, 143 ff. and references therein).

The SW-Tapiola Ware, which is rich in geographic and temporal variations, distributed in the region reaching from the East Baltic to the Mid-Volga, Oka, and Moscow river area, where it is known as the pre-Dyakovo type of pottery together with its subgroups (Syrovatko, 2013). Both the pre-Dyakovo and SW-Tapiola ceramics can be characterized by coarse rock temper; in these potteries striated, textile-impressed, and smoothed surfaces





**Fig. 2.** The dispersal of Finnic and Saami branches of Western Uralic. 1 – core area of Textile Ware in the middle Volga region, 2 – main area of pre-Dyakovo pottery styles in the Moscow and Middle Oka, 3 – distribution of Anan’ino axes, and 4 – distribution of Akozino-Mälär axes in the middle Volga, 5 – areas with Germanic settlement east of the Baltic Sea around 1000 BC (after Lang, 2015, appendix).

**2 pav.** Vakarių Uralo grupės finų ir samių atšakų paplitimas. 1 – tekstilinės keramikos centrinė sritis Volgos vidurupio regione; 2 – iki Djakovo stiliaus keramikos pagrindinė paplitimo sritis Maskvoje ir Okos vidurupyje; 3 – Ananino kirvių paplitimas ir 4 – Akozino–Meliaro kirvių paplitimas Volgos vidurupyje; 5 – sritys, kuriose būta germanų gyvenviečių, rytinėje Baltijos regiono dalyje apie 1000 m. pr. Kr. (pagal Lang, 2015, priedas)

occur together (quite often on the same pots) and quite monotonous decoration (consisting of circular pits, various stamp impressions, including twisted-cord, notches, etc.) is located only on the shoulder (or neck) part of pots as one ornamental belt. The NE-Tapiola Ware differs from the former by a much bigger proportion of textile-impressed surfaces (although the smoothed and striated surfaces also do occur) and much richer decoration, which often covers entire outer surfaces of pots. There are also differences in the morphology of pots if one compares these two styles. Striated Pottery differs from both Tapiola groups by the shape of vessels (the most common being the form of a bucket), a much bigger share of striated surfaces (smoothed surfaces also occur), and the absence (or scarcity) of decoration. Sharp and distinctive borders between these three main groups of pottery seem to have been missing, however. Instead, there have been rather wide transition zones when one was moving from one pottery area to the next.

While the NE-Tapiola Ware started to spread from the Middle and Upper Volga region to the north-west (reaching northern Finland) already in the earlier Bronze Age, i.e. in the 2<sup>nd</sup> and 3<sup>rd</sup> quarters of the second millennium BC,<sup>7</sup> the earliest evidence of SW-Tapiola Ware in Estonia belongs to the last centuries of the second millennium BC. There is no doubt that this pottery style came to Estonia from the east and south-east as proved by numerous parallels from the Daugava valley, the Upper Dnieper region, and the region between the Upper Volga, Oka, and Moscow rivers (Fig. 2). This was the first pioneering wave of newcomers who lived in small open settlement sites close to bigger water bodies. The next and much stronger wave of eastern material culture (pottery, bone, and antler artefacts) can be associated with the emergence of fortified settlements in the late 9<sup>th</sup> century BC. As no cemeteries have been discovered in connection with these first two waves, there is no data on the genetic origin of people living in those sites. One or two centuries later, however, new people arrived in coastal Estonia, who buried their dead in so-called early *tarand* cemeteries. This is a type of burial sites, which

<sup>7</sup> At least one part of this wave can be associated with the movements of people who later became the Saami.

directly resembles the houses of the dead known among the eastern Finno-Ugrians (Patrushev, 2000, 139 ff., figs 47–48). Today, as already mentioned above, the easternmost origin of (at least some) people who buried their dead in the early *tarand* cemeteries is proved by aDNA studies – three of the five individuals that were analysed had the Y-haplogroup N3a. Between thirty-six and forty-two per cent of modern Estonian, Latvian, and Lithuanian (and even more Finnish) males carry this haplogroup, the origin of which is ca 5000 years ago ‘somewhere in the east’. In the Bronze Age, this haplogroup was still missing in the eastern Baltic region.<sup>8</sup> This evidence refers to direct immigration from the east during the 2<sup>nd</sup> quarter of the first millennium BC at the latest (but most likely already a few centuries earlier), whereas this immigration has equally influenced the future Estonians, Finns, Latvians, and Lithuanians. It should also be mentioned that two individuals of four buried in the early *tarand* cemeteries were first-generation immigrants, as proved by Strontium-isotope analysis (Oras et al., 2016). The region of their departure is not clear as yet, but it was neither southern Finland nor western Sweden.

While the Late Bronze Age / Early Iron Age immigration to what are today Estonia, northern Latvia, and south-western Finland has already been analysed in greater detail (Lang, 2015; 2016; 2018), this topic still awaits research in association with the Striated Pottery culture. According to Andrejs Vasks (1991, 108 ff.), Striated Pottery was not merely the continuation of Neolithic traditions; it represented a qualitatively new style of pottery making, the establishment of which in the mid-second millennium BC was connected with the transition from hunting-gathering to farming subsistence. Aleksiejus Luchtanas (1992) has pointed out that the formation of the Striated Pottery culture took place in the area of the Neris river already during the 2<sup>nd</sup> and 3<sup>rd</sup> quarters of the second millennium BC, whereas it happened on the basis of Late Neolithic cultures (Corded Ware, Late Narva Ware, and perhaps even Late Combed Marked Pottery). In its earlier phase, according to Luchtanas, the typical sites of this culture were small open settlement sites of mostly hunters and fishers, as e.g. Žalioji and Bratoniškė, with ceramics with striated surfaces. Sometime later, one part of the population in the Neris region was supposed to have moved to what are today north-eastern Lithuania, south-eastern Latvia, and north-western Byelorussia and established there the culture of fortified settlements and Striated Pottery at the end of the second millennium BC (ibid.). A recent study has proved, however, that the pottery of the Žalioji type does not belong to the Early Bronze Age but has a Late Bronze Age date (Piličiauskas, 2012). Therefore this scenario is unlikely although one cannot exclude some small and local population movements.

As suggested by Egorejchenko (2006, 113 f.), the Striated Pottery culture was born in the region of the biggest concentration of fortified settlements in north-eastern Lithuania, north-western Byelorussia, and south-eastern Latvia. In order to better understand this process one has to study more thoroughly the cultural heritage of this region in the 2<sup>nd</sup> and 3<sup>rd</sup> quarters of the second millennium BC, as Egorejchenko suggests. But this is something we do not know about despite more than century-long archaeological research. At the same time, Egorejchenko refers to several circumstances that link the early Striated Pottery culture to the neighbouring easternmost cultures, such as Dnieper-Dvina and Dyakovo: One part of Striated Pottery (bucket-shaped pots with sparse decoration), clay spindle whorls, bronze axes of the Akozino-Mälar type, some types of bone pins and arrow heads, harpoons, etc. (ibid., p. 26, 52 f.). One can only agree with these examples. As there are no local prototypes of these artefacts, they spread to the region of Striated Pottery from the east. While the earliest contacts with the west can be dated from the last centuries of the second millennium and the first centuries of the first millennium BC, the eastern contacts became extraordinarily close since the 8<sup>th</sup> century BC, as stated by Egorejchenko (ibid.).

Considering both the archaeological and archaeo-genetic evidence discussed above, it cannot be excluded that new people from the neighbouring easternmost areas arrived in what are today north-eastern Lithuania, north-western Byelorussia, and south-eastern Latvia during the first quarter of the first millennium BC. Whether

<sup>8</sup> It was missing in the East-Baltic Bronze-Age population as described and analysed by Mitnik et al., 2017 and also in the Estonian Bronze Age (i.e. stone-cist graves) population (Saag et al., in preparation).

and how many people had come from the east earlier calls for further investigation. Whether there has been any immigration from the south-west (cf. Mitnik et al., 2017) and whether these probable newcomers are responsible for some artefacts of western origin found in fortified settlements (e.g. Podėnas et al., 2016, fig. 5), needs also further study.

## Concluding remarks

According to the knowledge we have today, the fortified settlements seem to form only one stage in the large-scale reformation process of culture, which started everywhere in the eastern Baltic region and south-western Finland during the Middle Bronze Age. Although there also did exist a local component of culture carrying some (cultural and genetic) continuity from the Early Bronze Age and the Late Neolithic, it remained in the long run relatively weaker than two other outside impulses. In one of my earlier studies I called this local component the *inland model* of the Bronze Age culture in the eastern Baltic region (Lang, 2013; 2014). These two outside impulses, however, proceeded from two different geographic directions, one from the west and the other from the east (south-east); in this earlier study they were named the *models of north/west* and *south-east*, respectively (Lang, 2013; 2014). The northern/western direction or model, which is not discussed in this article, brought along the tradition of monumental above-ground burial mounds in coastal Finland and Estonia, on the lower reaches of the Daugava river, western Lithuania, East Prussia and elsewhere on the south-eastern shores of the Baltic Sea. As in Finland the erection of stone graves of the Scandinavian type began in ca 1500 BC (e.g. Meinander, 1954, 111 ff.; Salo 1984) and the building of barrows on the south-eastern shores of the Baltic started more or less at the same time or even a little earlier (Merkevičius, 2016, 140 ff. and references therein; see also Vasks, 2000), this new tradition reached northern Estonia and the Daugava river valley a few centuries later, i.e. ca 1200 BC (Lang, 2018, p. 166, 180). Already in this earlier treatment (Lang, 2013; 2014) I considered it possible that there was some immigration responsible for the formation of the north/west model; today the aDNA studies have proven that the genetic composition of people burying their dead, for instance, in Estonian stone-cist graves was indeed different from the one making Neolithic Corded and Combed wares (Saag et al., in preparation).

The influences from the other direction, i.e. from the East-European Forest Belt (the so-called south-eastern model), are everywhere in the eastern Baltic region and south-western Finland younger than the western or south-western innovations. This eastern impact did not start with the foundation of fortified settlements but with the emergence of simple and small open settlement sites of (mostly) hunters and fishers on the shores of water bodies. Sometimes those settlements were established even on the hilltops that later became fortified. This process began during the last two centuries of the second millennium BC. It seems likely that the wave of fortified settlements spread not before the first quarter of the first millennium BC, reaching coastal Estonia around 850/800 BC as evidenced by a number of radiocarbon dates. When exactly and what kind of fortifications were erected in the eastern Baltic ‘fortified settlements’ is today not clear at all – this question needs certainly further study. What was the actual role of immigration of new population in the distribution of fortified settlements in the eastern Baltic region, Finland, and central eastern Sweden also needs further investigation, but this investigation is very complicated due to absence of cemeteries. But even now, merely on the basis of the available archaeological material, noticeable immigration from the region of the Upper Dnieper, Volga, and Oka rivers seems highly probable. The aDNA studies have proven that (one more) group of newcomers arrived in coastal Estonia (and most likely also in coastal Finland and central Sweden) during the period between 800 and 500 BC. They built early *tarand* cemeteries and many of them carried Y-haplogroup N3a, which was not known in this region before and which certainly came from the east. There is no doubt that some smaller groups came from the east even later, during the entire Pre-Roman and even the Roman Iron Age (Lang, 2018, 243 ff.).

It is important to establish the route that was used by the newcomers from the east (Fig. 2). This was an ancient net of thoroughfares, which from the Oka and Volga rivers went to the upper reaches of the Dnieper river

and from there to the Upper Daugava (Dvina) and through the Daugava to the Baltic coasts. I have called this network of water routes ‘the South-Western Passage’ (Lang, 2015) in order to set it apart from another important network of thoroughfares, the so-called North-Western Passage, which using the northern Russian rivers went from the Volga region to Karelia and interior Fennoscandia (see e.g. Kuz’mynych, 1996, fig. 13). While the North-Western Passage was the main route for the distribution of Textile (or NE-Tapiola) Ware, the South-Western Passage was used by the people spreading the SW-Tapiola Ware – and probably also by the makers of Striated Pottery, keeping in mind the similarity of bone and antler artefacts of both groups (e.g. Luik & Maldre, 2007; Luik, 2013; Luik & Lang, 2013). Both the Dnieper-Dvina and the Upper-Oka archaeological cultures were located in the South-Western Passage. According to the distribution of Baltic hydronyms, these cultures might have belonged to the ancestors of some Baltic- (or Balto-Slavic-) speaking tribes. The regions immediately north of the latter belonged to western Finno-Ugrians.

Similarly, it is also important to define what in this treatment is understood under the term ‘migration’. Certain mobility of people has always existed; even single individuals can migrate, but they seldom leave behind archaeologically observable traces (though they can be detected genetically). Therefore, in archaeology one can talk about migration only if bigger groups of people move from one region to another either all at one time or in smaller groups on several occasions over a longer period of time – and bring along their own cultural traits. As for Finnic arrivals in the East Baltic and Finland during the first millennium BC (Lang, 2015; 2018), I have kept in mind the latter, that is, a number of comings in smaller groups. The spread of fortified settlements together with characteristic material culture was but one episode in this long-lasting process, perhaps the most important one. But even in the case of fortified settlements one cannot forget that the population sizes of those days were relatively small and the migrating groups were small as well. It might well be that migrating groups consisted only of a few families, sometimes being even sex-biased as argued by geneticists (Saag et al., in preparation). What is also important is that those passages described in the previous paragraph were not only used unidirectionally from the east to the west, but the opposite movements have also been proven by both archaeological findings and linguistic considerations (Lang, 2018, p. 243), even by aDNA studies. Exaggerated mobility in various directions is easily imaginable in the case of both male- and female-biased movements while families most likely tend to act in a more conservative, that is, unidirectional way.

The historical linguists have long ago stressed the strong impact of Proto-Baltic (or Proto-Balto-Slavic) on Proto-Finnic (see e.g. Vaba, 2011; Junttila, 2012 and references therein). According to linguists, the specifics of this language impact implies close and long-lasting contacts where two ethnic groups have lived side by side and even mixed with each other, and where the Finnic side stood rather close to the replacement of the language but finally still assimilated that part of the Proto-Baltic population that lived together with them. This dense living together was earlier dated to the Neolithic, when the makers of the Corded Ware and the Combed Ware often formed mixed populations (Moora, 1956; 1958). Contemporary linguistic and archaeo-genetic studies suggest that the Eastern Baltic Stone Age cultures had no direct link to Proto-Balto-Slavic or Proto-Finnic languages – these proto-languages are too young for that (see more in Lang, 2018, 60 ff.). Taking into the consideration the development of material culture, the only possibility to explain the dense living together of the ancestors of the Proto-Balts and Proto-Baltic Finns is the fortified settlements of the Late Bronze Age. This is because the fortified settlements form the only cultural environment that was obviously shared by these two ethnic groups. And that environment was shared already during the migrations from the Volga and Oka region through the South-Western Passage, but it was particularly common in the Daugava basin. Later one part of this population shifted more northwards and strengthened those West-Uralic groups that had arrived earlier in what today are northern Latvia, Estonia, and south-western Finland; they also reached eastern central Sweden. The East-Baltic community was consolidated on the basis of the southern part of this population of fortified sites. The Daugava river became an ethnic border between the Proto-Balts and the Proto-Finns at the end and after the Bronze Age.

One can ask now whether and how the earlier interpretations suggesting social and economic reasoning match this new interpretation stressing migration and different ethnic background of people living in fortified

settlements. Actually, almost nothing changed even in the ethnic interpretation of fortified settlements (the division of 'the Balts in the south and the Baltic Finns in the north' remained principally the same), with the exception that the corresponding groups were newcomers from the east rather than descendants of local Neolithic populations. This circumstance puts the fortified settlements in a new light or, at least, poses some new questions. Were the sites fortified because the people living there 'did not feel secure in this land' (cf. Moora, 1929)? Or was the main reason for fortifying the settlements still the need to protect one's property (stock, bronze)? It seems more expedient to consider the complexity of reasons: The sole fact of immigration had to bring about social tensions between the indigenous and the immigrating groups. Archaeological evidence suggests that those living in fortified settlements (newcomers) had more stock and other property (particularly bronze) than the local communities living in small open sites, and this property certainly needed protection. It is also clear that the communities of fortified settlements were stronger and bigger than the groups of open settlement sites, consisting of several families who were capable of building fortifications and defending them. Therefore, both social and economic reasons behind the foundation of fortified settlements are still valid; yet, they must be considered in the framework of the immigration of at least certain amounts of new people.

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## Įtvirtintos gyvenvietės Rytų Baltijos regione: nuo ankstesnių tyrimų prie naujų interpretacijų

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Santrauka

Įtvirtintų gyvenviečių tyrinėjimai Rytų Baltijos regione prasidėjo XIX a. pabaigoje. Jų metu nustatyta pagrindinė šių gyvenviečių paplitimo teritorija, vėlyvojo žalvario ir ikiromėniškojo geležies amžiaus laikotarpių principinė chronologija ir jų esminis kultūrinis ir ekonominis pobūdis, t. y. nedidelis metalinių dirbinių kiekis (nors jų gamyba buvo plačiai paplitusi), gausūs kaulo ir rago dirbiniai, menka žemdirbystės, tačiau didelė gyvulininkystės, medžioklės ir žvejybos reikšmė bei kapinynų šalia gyvenviečių nebuvimas. Buvo manoma, kad pagrindinė įtvirtintų gyvenviečių įrengimo priežastis buvo poreikis apsiginti, o apsiginti reikėjo nuo 1) išorės pavojų arba 2) visuomenėje kilus įtampai, t. y. dėl socioekonominio nelygiateisiškumo. Etninė žmonių, gyvenusių šiose gyvenvietėse, kilmė (skirtumai) nebuvo laikoma įtvirtinimų statybos priežastimi, daugiausia dėl vyravusios etninės paradigmos, vadovaujantis kuria buvo manoma, kad visi svarbiausi etninio formavimosi procesai rytinėje Baltijos regiono dalyje buvo pasibaigę iki įtvirtintų gyvenviečių įrengimo pradžios. Visgi šiame straipsnyje kvestionuojamas numanomas kultūrinis ir etninis tęstinumas, kaip pagrindinis raidos pereinamuoju laikotarpiu iš vėlyvojo neolito į (vėlyvąjį) žalvario amžių būdas. Be to, straipsnyje teigiama, kad nauja materialinė kultūra, susiformavusi vėlyvajame žalvario amžiuje, įskaitant ir įtvirtintas gyvenvietes, ir joms būdingus dirbinių rinkinius, bent jos dalis, buvo sukurta naujų gyventojų, kurie keliomis bangomis atvyko iš Rytų Europos miškų juostos.